

# STEM Council Meeting

April 17, 2019

Dr. Andrew Melin  
Chief Innovation Officer



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*Working Together for Student Success*

# Agenda



1:30 p.m. Welcome and Introductions

Dr. Andrew Melin

Chief Innovation Officer

1:40 p.m. Opening Comments  
McCormick

Dr. Jennifer

Superintendent of Public Instruction

1:50 p.m. STEM Playbook Presentation

Dr. Andrew Melin

Chief Innovation Officer

2:25 p.m. Group Input/Feedback

Ben Carter

Director of Workforce and Innovation

2:55 p.m. STEM Organization and Future Meetings

Ben Carter

2



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Director of Workforce and Innovation

Indiana Department of Education



# Welcome & Introductions



- Welcome
- Introductions
  - STEM Council Members
  - IDOE Team



# STEM Accomplishments



- STEM Acceleration Grants
- STEM Certified Schools
- Robotics
- Computer Science
- Cybersecurity
- Digital Learning Grants
- Summer of eLearning





# Acceleration Grants

- Round 1: \$910,000  
11 school districts
- Round 2: \$546,469  
14 school districts





# Certified Schools

- 60 schools have been certified to date
- 5th cohort will be certified in May





# Robotics

- 1013 Elementary VEX IQ teams
- 440 Middle School VEX IQ teams
- 168 High School VEX EDR teams

Indiana also hosts the largest State Robotics Competition in the country and the 2nd largest VEX event (only behind the world championship)





# Computer Science

- Indiana became the 3rd state to implement all 9 policy recommendations of the Code.org Advocacy Coalition







# Computer Science

## Nextech Partnership

- 689 K-12 teachers trained in CS since June 2018
- More to be trained over the next few months

## SCRIPT workshops

- Teams from 66 districts have participated in SCRIPT strategic planning and implementation workshops

## Girls Who Code

- State-level partnership
- 135 clubs across the state





# Computer Science

- Science Framework development to include K-8 computer science
- Additional funding from General Assembly will allow us to grow/expand our CS PD efforts





# Cybersecurit



Grants for PLTW curriculum and training

- Round 1: \$51,800 to 7 schools
- Round 2: \$348,000 to 48 schools

Cyber Awareness campaign for educators

- 86 districts participating
- 40,000 staff



# Digital Learning Grants

**2018**

- 27 school corporations
- Up to \$75,000 each
- \$2,025,000 awarded
- Add and expand vetted STEM curriculum K-12



# Digital Learning Grants

## 2019

- 50 school corporations
- Up to \$50,000 each
- \$2,327,439 awarded
- Support schools with:
  - ✓ STEM curriculum
  - ✓ Devices for coding
  - ✓ Robotics
  - ✓ Project-based learning
  - ✓ Professional learning for teachers



13



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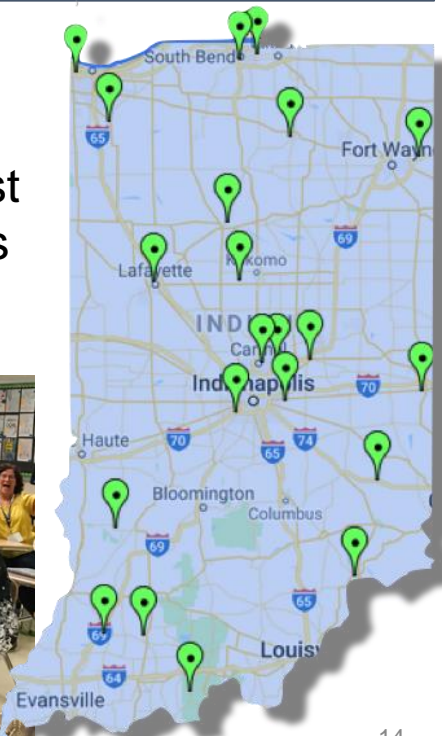




# Summer of eLearning



- 21 conferences
- 20 days June – August
- 55 sponsoring districts
- 8,000+ educators





# Summer of eLearning



100's of learning opportunities focused on STEM, computer science, and classroom technology



- Nextech CS fundamentals workshops
- PLTW STEM and CS sessions
- Apple coding and STEM PD
- Girls Who Code
- Teacher-led trainings



15



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# STEM Strategic Plan and Playbook



## Vision

All Indiana students in grades K-12 will graduate with critical thinking skills and be prepared for an innovation-driven economy by accessing quality, world class STEM education every day in the classroom by 2025.



# STEM Strategic Plan and Playbook



## Mission

Ensure Indiana teachers are prepared to provide every student in grades K-12 with an evidence-based, effective STEM education by 2025.



# STEM Strategic Plan and Playbook



## **Strategic Objective 1:** Improve STEM Instruction

**Target:** 100 percent of Indiana K-12 teachers will be trained in problem/project/inquiry-based approaches to learning by 2025.



# STEM Strategic Plan and Playbook



## Strategic Objective 1: Improve STEM Instruction

**Recommendation 1:** Prepare pre-service and in-service educators with evidence-based critical thinking, and problem/project/inquiry-based approaches to learning.

- ❑ **Action Step 1:** Identify and train at least 300 K-12 teachers to become project-based learning trainers (STEM Coaches) by the summer of 2021.
- ❑ **Action Step 2:** Partner with higher-ed institutions to ensure PBL is embedded in teacher training programs by training two representatives from each program. Also, update the state accreditation process.
- ❑ **Action Step 3:** Identify and train at least 2000 K-12 teachers at all grade levels in computer science and cybersecurity content and pedagogy by June 30, 2021.



# STEM Strategic Plan and Playbook



## Strategic Objective 1: Improve STEM Instruction

**Recommendation 2:** Implement strategies and activities to recruit and retain high-quality STEM proficient and STEM-trained educators.

- ❑ **Action Step 1:** Develop a model of “best practice” to embed PBL into EPP pedagogy.
- ❑ **Action Step 2:** Develop Grow Your Own (GYO) solutions at both the adult (transition to teaching) and K-16 levels.
- ❑ **Action Step 3:** Create awareness of existing licensing options and flexibility (including Computer Science and Cybersecurity).
- ❑ **Action Step 4:** Increase STEM Cadre membership to enhance collaboration and to enable practitioners to provide consistent input on the STEM Playbook.





# STEM Strategic Plan and Playbook



## **Strategic Objective 2:** Scale Evidence-Based STEM Curriculum in Classrooms

**Target:** 100 percent of Indiana K-12 schools will implement integrated and evidence-based STEM curriculum by 2025.



# STEM Strategic Plan and Playbook



## Strategic Objective 2: Scale Evidence-Based STEM Curriculum in Classrooms

**Recommendation 1:** Provide resources to schools to implement integrated, evidence-based STEM curriculum in classrooms with the emphasis on K-8 learning environments.

- ☐ **Action Step 1:** STEM Innovations, LLC will create a vetted list of high-quality STEM curriculum.
- ☐ **Action Step 2:** Develop a database to identify those schools that have implemented an evidence-based STEM curriculum.
- ☐ **Action Step 3:** IDOE will publish a list of Computer Science and Cybersecurity curriculum providers and resources.
- ☐ **Action Step 4:** Continue to offer STEM Acceleration Grant Opportunities.
- ☐ **Action Step 5:** Update STEM Acceleration Grant process to require use of a state-vetted curriculum.



# STEM Strategic Plan and Playbook



## Strategic Objective 2: Scale Evidence-Based STEM Curriculum in Classrooms

**Recommendation 2:** Evaluate processes and incentives for STEM certified schools.

- ☐ **Action Step 1:** Review and modify STEM certification process.
- ☐ **Action Step 2:** Determine levels of certifications that accurately represent the quality of STEM certifications.
- ☐ **Action Step 3:** Develop a tool to incentivize STEM certification attainment.



# STEM Strategic Plan and Playbook



## **Strategic Objective 3:** Foster Early STEM Career Exposure

**Target:** 100 percent of Indiana schools will create and sustain robust STEM-related business and industry partnerships in order to inform curriculum, instruction, and student experiences to foster college and career readiness.



# STEM Strategic Plan and Playbook



## Strategic Objective 3: Foster Early STEM Career Exposure

**Recommendation 1:** Provide a roadmap to educators showing how STEM integration ensures students receive career exploration (K-8) and career readiness opportunities (9-12).

- ❑ **Action Step 1:** Development of five Programs of Study (cradle to career) in key sectors to include career awareness (K-5), career exploration (6-8), and work-based learning experiences (9-12).
- ❑ **Action Step 2:** Develop a statewide Computer Science and/or Cybersecurity competition or experience (i.e., Cyber Patriots, CTSOs, VEX, etc.).



# STEM Strategic Plan and Playbook



## **Strategic Objective 3:** Foster Early STEM Career Exposure

**Recommendation 2:** Support schools as they coordinate with business, industry, and post-secondary partners to design extended learning opportunities linked to STEM careers.

- ❑ **Action Step 1:** Facilitate a planning grant process to promote the development of community/regional advisory groups.
- ❑ **Action Step 2:** Work with state agencies to ensure alignment of efforts (i.e., Governor's Workforce Cabinet, Office of Career Connections and Talent, Office of Work Based Learning and Apprenticeship).





# STEM Funding



Area	Cost	Source
Improve STEM Instruction	\$6,650,000	Title II, Next Level CS Grant Funds
	\$50,000	Title II
Scale Evidence-Based STEM Curriculum in Classrooms	\$900,000	2020 State STEM Funds
	\$100,000	2020 State STEM Funds
Greater Access to Quality STEM Opportunities	\$44,000	Perkins Fund
	\$500,000	David C. Ford
<b>TOTAL</b>	<b>\$8,244,000</b>	



# STEM Innovations, LLC



- Dr. Carla C. Johnson, Lead Evaluator
- January 1, 2019 to December 31, 2019
- Follow up to STEM Inventory Study conducted in fall 2018
- Evaluation goal - to inform current and future efforts and investments
  - Determine progress and challenges in STEM statewide (macro)
  - Examine State of Indiana STEM Investments (micro)



# STEM Innovations, Inc.



- STEM Inventory Survey – April 15 to May 1, 2019
  - Searchable Online Database of Findings Available September 2019
  - Survey is for:
    - Superintendents
    - Principals
    - Teachers
- Site Visits to Sample of Selected STEM Schools and K-6 STEM Acceleration Grant Programs
  - Round One and Round Two only
- Inventory of Available Evidence-Based STEM Curriculum
  - Curriculum that has produced gains in student outcomes



# STEM Innovations, Inc.



- Indiana STEM Landscape Report – available to public January 2020
  - Detailed findings on survey and site visit data
  - Recommendations for future efforts and investments
- Framework for Evaluating STEM Implementation – Future Use
  - Informed by the 2019 Indiana STEM Evaluation
  - Metrics for long-term study of Indiana STEM



# Group Input/Feedback



- Ben Carter, Director of Workforce and Innovation
- [STEM Playbook](#)



# Group Input/Feedback



1. What are your initial thoughts on the action steps for **Improve STEM Instruction**?
2. What steps are unclear or missing information?
3. Does the timeline seem reasonable?
4. What suggestions do you have?
5. What additional questions or wonderings do you have?





# Group Input/Feedback



1. What are your initial thoughts on the action steps for **Scale Evidence-Based STEM Curriculum in Classrooms**?
2. What steps are unclear or missing information?
3. Does the timeline seem reasonable?
4. What suggestions do you have?
5. What additional questions or wonderings do you have?



# Group Input/Feedback



1. What are your initial thoughts on the action steps for **Foster Early STEM Career Exposure**?
2. What steps are unclear or missing information?
3. Does the timeline seem reasonable?
4. What suggestions do you have?
5. What additional questions or wonderings do you have?



# STEM Organization/Future Meetings



- STEM Council Role
- STEM Cadre Role
- DOE Support Role

\*Next Steps



# Contact Information



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<https://www.doe.in.gov/wf-stem/idoe-stem-council>





# 2019 Legislative Session



HB 1001

\$300K  
for Math  
Transition

## STEM Budget

House: \$2M  
Senate: **\$2M**  
Governor: \$2M  
IDOE: \$20M  
STEM Council: \$20M\*

+ \$5M  
Student  
Success

## David C. Ford

House: \$6.77M  
Senate: **\$6.17M**  
Governor: \$6.17M  
IDOE: \$6.11M

## NextLevel Computer Science

House: \$6M  
Senate: **\$0**  
Governor: \$6M  
IDOE: \$0\*

\*Included in \$20M STEM Ask

HB 1002 - CTE

- Perkins Money to GWC
- 50% of CTE Teachers Not Licensed
- Teacher Licensing Exam to National
- ICO and School Partnerships
- Adds Members to GWC
- 15 PGP Pts in CTE
- Let Indiana Work for You Program

